

WHAT IS CLAIMED IS:

1. A differential output structure, comprising:

an input line including:

a first path having an input end for receiving input signals, the first path

5 also having an output end and including at least one driving element, and

a second path having an input end operably coupled to the input end of
the first path for receiving the input signals, the second path also having an output end;

an output driver, operably coupled to the output ends of the first and second
paths, that is configured to provide differential outputs; and

10 a sync circuit, operably coupled between the first and second paths, that is
configured to synchronize the speed of signals traveling on the two paths.

2. The structure of claim 1,

wherein the first path further includes a plurality of driving elements connected in
series to one another, the first path providing an inverted output of the input signals and

15 wherein the second path includes a plurality of driving elements connected in
series to one another, the second path providing a non-inverted output of the input
signals.

3. The structure of claim 2, further includes at least another sync circuit, operably coupled between the first and second paths, that is configured to synchronize the speed of signals traveling on the two paths.
4. The structure of claim 3, wherein each of the sync circuits includes a capacitor.
5. The structure of claim 1, wherein the sync circuit includes a capacitor
6. The structure of claim 1, wherein the sync circuit is coupled between the output ends of the first and second paths.
7. The structure of claim 2, wherein the driving elements of the first and second paths have a predetermined constant taper ratio.
8. The structure of claim 7, wherein the taper ratio is four.
9. The structure of claim 3,
wherein each sync circuit is coupled between an output of a driving element on the first path having a first current driving capability and an output of a driving element on the second path having a second current driving capability, and
wherein the first current driving capability is greater than the second current driving capability.
10. A differential output structure, comprising:

an input line including:

a first path having an input end for receiving input signals, the first path also having an output end and including three driving elements connected in series to one other, and

5 a second path having an input end operably coupled to the input end of the first path for receiving the input signals, the second path also having an output end and including three driving elements connected in series to one other;

an output driver, operably coupled to the output ends of the first and second paths, that is configured to provide differential outputs; and

10 first and second sync circuits, each operably coupled between the first and second paths and configured to synchronize the speed of signals traveling on the two paths.

11. The structure of claim 10,

wherein the three driving elements on the first path are an exclusive OR gate
15 and first and second inverters; and

wherein the three driving elements on the second path are an exclusive NOR gate and third and fourth inverters;

12. The structure of claim 11,

wherein the exclusive OR gate has its first end connected to the input end of the first path and has its second end connected to a supply voltage; and

wherein the exclusive NOR has its first end connected to the input end of the second path and has its second end connected to a ground reference level.

5 13. The structure of claim 12, wherein the driving elements on the first and second paths have a predetermined constant taper ratio.

14. The structure of claim 13, wherein the taper ratio is four.

15. The structure of claim 13,

wherein the first sync circuit is coupled between an output of the first inverter on
10 the first path and an output of the exclusive NOR on the second path, and

wherein the second sync circuit is coupled between the output of the second inverter on the first path and the output of the third inverter on the second path.

16. The structure of claim 13, wherein each of the sync circuits includes a capacitor.

15 17. The structure of claim 16, wherein the capacitor of the second sync circuit is larger than that of the first sync circuit.

18. A system, comprising:

a plurality of devices interconnected to one another;

wherein at least one of the devices includes a differential output structure, the structure comprising:

an input line including:

5 a first path having an input end for receiving input signals, the first path also having an output end and including at least one driving element, and

 a second path having an input end operably coupled to the input end of the first path for receiving the input signals, the second path also having an output end;

10 an output driver, operably coupled to the output ends of the first and second paths, that is configured to provide differential outputs; and

 a sync circuit, operably coupled between the first and second paths, that is configured to synchronize the speed of signals traveling on the two paths.

19. The system of claim 18,

15 wherein the first path further includes a plurality of driving elements connected in series to one another, the first path providing an inverted output of the input signals and

wherein the second path includes a plurality of driving elements connected in series to one another, the second path providing a non-inverted output of the input signals.

20. The system of claim 19, further includes at least another sync circuit,
5 operably coupled between the first and second paths, that is configured to synchronize
the speed of signals traveling on the two paths.